The American CINEMATOGRAPHER

ACADEMY OF MOTION PICTURE
ARTS AND SCIENCES

VOL. 3, NO. 7 LOS ANGELES, CAL. OCTOBER 1922 TWENTY-FIVE CENTS A COPY

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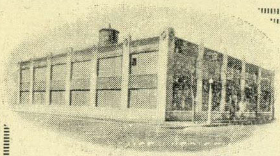

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Vol. 3 OCTOBER, 1922 No. 7

The American Cinematographer

The Voice of the Motion Picture Cameramen of America; the men who make the pictures

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An educational and instructive publication espousing progress and art in motion picture photography while fostering the industry.

We cordially invite news articles along instructive and constructive lines of motion picture photography from our members and others active in the motion picture industry. All articles must be signed by name and address of writer.

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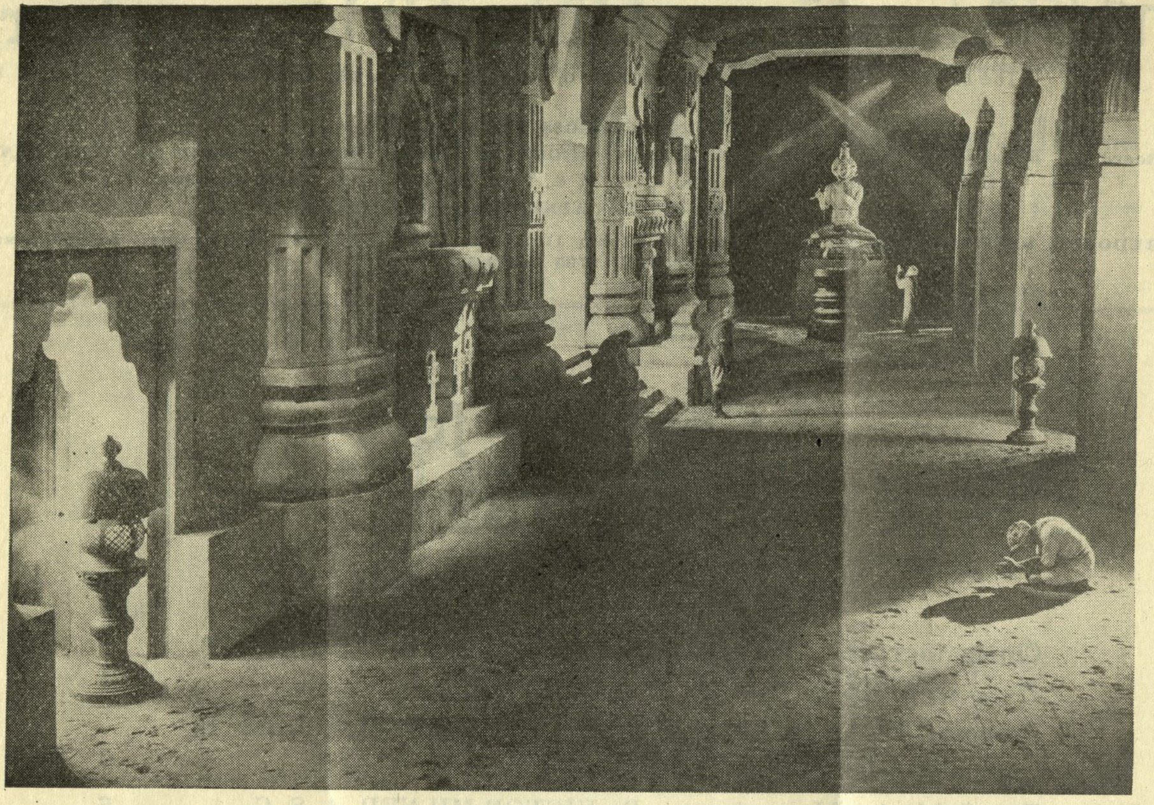


An example of judicious use of lights and shadows from the Paramount production, "The Young Rajah," directed by Philip E. Rosen, A. S. C.

Cinematography As The Director's Aid

By Philip E. Rosen
A. S. C.

Maximum use of photography next important advance in direction. Director should understand cinematography.

Probably the most important step to be taken in the evolution of motion picture direction is the maximum utilization of photographic possibilities by the director.

The director who understands cinematography possesses an inestimable advantage. Since motion pictures are motion photography, why not tell the story, to the utmost, with pictures?

A scene may be photographed in such a manner that it has little or no effect on the audience. On the other hand, the same scene, properly filmed, may conjure in the audience practically any mood that the director wishes to effect. Those motion pictures which have achieved extremely long runs, those which have been most widely discussed and virtually commanded the attention of a nation, have been of the sort which have succeeded in breaking through and beneath the shell of reserve which every civilized man has developed.

Proper Photography

To the director, as well as the cinematographer, photography should be as the artist's colors and materials are to him. The subject which the artist would reproduce on canvas may be ever so noble; yet if he does not use his brush and his colors intelligently, the result will be of no especial value. The director may have a masterpiece for script, he may be superb in the art of direction; yet if his work is not photographed properly the results invariably fall short of his expectations.

As has been pointed out before, photography has the power to influence the moods of the audience. Every seqeunce should have its own writing, that is, every sequence should be designed photographically, according to the impression which is designed to be conveyed. The simplest examples of designing for effect are the uses of light for "happiness' and shade for "sorrow."

Advantages

Observe, then, the advantages of the director who is conversant with the possibilities of the camera. It is not necessary for him to wrack his brain over the proper portrayal of a scene or sequence nor does he have to resort to the lengthy sub-title to bridge his gap. He lets the camera talk for him. He realizes that the first-class cinematographer possesses a wealth of knowledge which can be used practically for the improvement of any production. If he and the cinematographer speak the same photographic language they can meet on common ground for the good of all. Much valuable time is lost and a complete understanding is not attained when the director does not understand the camera, even though he may appreciate the knowledge of the cinematographer and seek to consult with him. They are on opposite sides of the fence; they speak different languages.

(Continued on page 19.)

Proposal Made to Entomb Film Until 2109

What will be condition of film kept in vault almost two centuries? Proposal is unique.

By Silas E. Snyder

How will future generations regard present equipment? Discuss means for preservation.

How long will motion picture photographic film keep "alive"?

Will it keep "alive" one hundred and eighty-six years?

By "alive" I mean will it, at the end of one hundred and eighty-six years, if properly packed and stored, be as good as the day it came from the laboratory and in perfect condition to screen? By "properly packed and stored" I mean to be wrapped in the right kind of paper, placed in the right kind of containers and stored in the right kind of a vault.

But for such a long entombment—one hundred and eighty-six years—what kind of paper should be used to wrap the film; what kind of containers should the reels be packed in, and of what construction should the vault be as best calculated to safeguard and protect the film? All these questions and many others have arisen because of the announcement made recently by the Rockett-Lincoln Film Company, of Hollywood, California, that they had offered to the United States government a copy of their picture, "The Life of Abraham Lincoln," now in process of production, with the proviso that it be kept sealed until the three hundredth anniversary of the birth of Abraham Lincoln, or until February 12, 2109. As the film will be presented to the government on February 12, 1923, the period of its "burial" would be exactly one hundred and eighty-six years.

The Rockett-Lincoln Film Company's announcement in full is as follows:

For the first time in history, and more particularly in the history of the screen, a great art work is deliberately to be handed down to posterity with the purpose of perpetuating an art, a story, an illustrious name and a true picture in living scenes of one of the most crucial periods in the history and the evolution of the race.

The Rockett-Lincoln Company, of Hollywood, make the interesting announcement that a copy of their fifteen-reel picture of the life and times of Abraham Lincoln has been offered the United States government and the National Lincoln Memorial Commission for deposit in the Smithsonian Institute or elsewhere at Washington, D. C., with the proviso that it be kept sealed until February 12, 2109, the three hundredth anniversary of Lincoln's birth.

Sealed In Steel Vault

The fifteen reels of film, together with a modern projecting machine, with full instructions how to operate it, will be sealed in a steel vault, specially constructed to preserve the film and machine in perfect working order and with these will be deposited a copy of the working script of the picture and a few copies of the best books on motion picture production and practice. The idea back of this is that in the one hundred and eighty-six years to lapse between 1923 and 2109, tremendous changes will take place in motion picture production and exhibition and the donors of the Lincoln picture will take every precaution to insure the proper exhibition of their picture in 2109.

Film experts have expressed the opinion that the film should keep "alive"—that is, that both the film itself and the emulsion should not in any way deteriorate, but to make sure, the company has put the matter up to Alfred B. Hitchins, director of the Ansco Research Laboratories at Binghamton, New York, one of the greatest film experts in the world, and Dr. Hitchins' judgment will be accepted as final.

Company Will Carry Out Plans

But in any event, the company will take a chance and carry out its plans as outlined. In case any obstacle arises to prevent the acceptance of the film by the United States government or the Lincoln Memorial Commission, it will be presented to the City of Springfield, Illinois, and deposited in a special vault at Oakridge Cemetery, near the Lincoln Monument.

What Must Be Considered

When the matter was put up to Dr. Hitchins, who in addition is an associate editor of The American Cinematographer, he expressed himself as intensely interested and his quick mind at once made the following suggestions, which are quoted verbatim from his letter to the writer:

"With reference to storing the film for such a long period, there are a number of things which should be taken into consideration previous to sealing up the vault.

"In the first place you must be sure that the celluloid base on which the film has been coated is in absolutely perfect condition, thoroughly cured and at the same time flexible.

"The reels should be wrapped separately in several layers of absolutely chemically pure paper before placing them in the cans, so that no metal is at any time in actual contact with the film.

"The photographic processes must also be very carefully carried out. The film must be very thoroughly fixed and washed. The atmospheric conditions which prevail in the vault will also have same effect upon keeping qualities. Too much moisture will, of course, be dangerous, but on the other hand the vault should not be bone dry.

"Personally, I think that it would be wise to open up the vault at say twenty-five-year periods and have the acknowledged expert at that particular time make an inspection of the film or at least one of the reels, so that any defects in packing paper, tin cases, etc., may be detected and remedied. I think perhaps it might even be advisable to take the film out and submit it to washing operations at the time of these periodical examinations.

"I firmly believe, providing every precaution is taken from the photographic processes through to the final packing, that the film will keep in good condition for the period mentioned. It is, of course, impossible to foretell what may happen to the celluloid base.

"Supposing the film should happen to be coated in some base which is slightly acid, then there is a likelihood of the celluloid base decomposing or breaking up, so that for a thing of national importance, such as you propose, the utmost care should be taken at every stage to insure the most perfect condition of the finished reels.

"In storing for so long a period it is necessary that the wrapping paper should be pure, free from sulphur and other chemicals; that the film should not come in contact with any metal or rubber, particularly vulcanized rubber, and I do not think that any form of adhesive tape or sticker should be used in fastening the paper wrapping.

"With reference to the projector which you also propose to put in the vault, I should think it might be a good idea to use a good celluloid lacquer on all the bright and working parts of the machine. (This lacquer would have to be cleaned off before operating.) Here again this lacquer would have to be free from acid reaction. The books which you propose to put in should really be printed on something a little better than the usual book paper, in fact, they should be printed on all-rag stock, as most of the present-day book papers which contain considerable amounts of sulphite and wood pulp will develop acidity and become reduced almost to a powder in that period of time."

(Continued on page 19.)

Two Subjects of Importance

By Victor Milner, A. S. C.

Laboratory conditions reviewed. How to correct difficulties. How is the cinematographer regarded?

There are two subjects, which, although they may not be directly related to each other, should have the earnest consideration at the present time of cinematographers and all those interested in motion picture production. They are: First, the manner in which the cinematographer is regarded by various producing outfits; and, second, the treatment accorded the cinematographer's efforts in the organization laboratories of the important producing organizations.

It is a self-evident fact that photography is the foundation of motion pictures. But is that fact fully appreciated by those who themselves are connected directly with the industry?

It wasn't so very long ago that a cinematographer was considered by many producers and directors as a necessary evil, needed, of course, to film the picture, but a stumbling block, for the reason that he would not respond to being considered a machine whose chief purpose was to turn out as much "footage," in fact, as many miles of film per day as possible.

Quantity or Quality?

In other words, he was expected to be a creature of quantity, not quality. Yes, he was the stumbling block because he could not be made to turn his camera crank any faster, because he refused to pile in a bunch of "broadsides" in a set, and because he refused to make the phrase "good enough" a part of his vocabulary.

Great Responsibilities

Mr. Hays stated recently at a banquet that "the motion picture industry is the fourth largest in the world." I believe the majority of us take it rather lightly. I firmly believe that the "movie" of today is the greatest educator ever developed by human ingenuity. Study, lectures, comparison of cinema efforts have made it so. Our responsibilities are great, so let's try to meet them as we should.

A Necessary Evil?

The "producer" who regards the cinematographer as a necessary evil reminds me of the exhibitor of olden days who spent a fortune in building a theater, but when it came to equipment bought a second-hand projector. Of course, none of us will dispute the fact that the industry must be a dividend-paying investment to exist, but the puzzle is why the manager of every studio seems to burst with pleasure because the cinematographer he has "just signed up" will work for a song!

Doesn't the manager realize that the cinematographer whose low salary scale indicates his inexperience may cost the company a small fortune before the production is completed?

Let's see—what are the responsibilities of the cinematographer of today? What are his responsibilities to the public, his employer, his director and to himself? Is turning the crank all he has to do?

What Cinematographers Do

He gets a script; he studies it; he visualizes it. It's up to him to use intelligence in portraying on the screen by atmospheric lighting and photographic composition the thoughts that the author, the director and the player are trying to give to the audience. He must know where to place his lights and where to place his shadows. He must be familiar with the results obtained from shooting from various angles. He must study the star and other players to learn the angle from which they appear to best advantage. These are but few of his duties.

Carelessness Means Cost

The cinematographer who has "been through the mill" realizes the value of speeding up; in helping to hold down the overhead. But at the same time he realizes what carelessness and inexperience will do toward running up the production cost. The inexperience of the man whose services have been bought "for a song" has cost many a producr thousands of dollars in re-takes alone, without considering the loss occasioned by the misuse of lighting equipment, etc.

Save On Lighting Costs

I wonder if the producer realizes how much the experienced cinematographer saves by the intelligent use of equipment? The cost of lighting a program picture runs to about $4000 and for some big productions to $90,000. Can you see what the mishandling of lighting will do? Can you see what the cinematographer who uses his lights correctly, who, for instance, does not flood the scene full of light and who does not make a death-chamber scene look like a ballroom, saves his employers?

Do Not Underpay

Underpay a man and you induce carelessness. The foregoing figures on lighting comprise just one item in the filming of a picture—one item of expense which the experienced man will keep down and which the inexperienced man can double or triple.

Second

The second subject is just as important. It is a deplorable fact that the best efforts of the cinematographer are almost utterly ruined in many instances by the treatment which his efforts are subjected to when the negative reaches the laboratory of his studio in the East. Conditions in this respect are no better now than they were several years ago. A fortune is spent on a negative, directors consult cinematographers for particular effects; dozens of people are employed to make some scene effective—but, in spite of all this care, in spite of all the money expended to make a really worth-while picture, prints must be gotten out in a few hours. The wrong kind of speed is the criminal who murders our work—and when I say "we" I mean director, player and scenarist, as well as cinematographer. The work of months is shot through a printing machine at a speed that would dazzle an automobile racing champion. Racks are dropped into tanks of developer, better known as nitro-glycerine, developed in a half-minute and jerked out. This, many times, is the fate of our work.

A Suggestion

It would seem that production officials are overlooking this very important phase of picture making. Why put forth time and effort to have all off-set in the last operation by unnecesasry haste? It may plainly be seen that this is false economy, false speed, and that the producer, if he is reckoning in dollars and cents, is the one who will be the loser in the final count. Why not give the studio laboratory men, if prints shall be continued to be made in the private laboratories, sufficient time in which they can do their work to the best of their ability? I don't believe that any studio willfully employs inefficient laboratory workers, and if they do, they shouldn't. But even the best laboratory man can't do his best when a motto of speed only, at the cost of everything else, is laid down for him. Producers should consider this.

The best advertisement that the independent laboratories have—and there are many of them—are screen exhibitions which come from their prints. One of the greatest factors in the success of the independent laboratories is that speed is not carried to the extreme in the making of prints.

Across the South Seas to Papeete and Tahiti

No automobile dodging in land of leisure. ¶ Bicycles and buggies still prevail.

By Glenn R. Kershner

Sunsets are beautiful. Rain is plentiful. ¶ Camera records Islanders' feasts.

Yes, sir, here we are back from Tahiti, the South Sea Island of brown maidens and excellent cocktails.

For a long time all we could hear around the Goldwyn lot was about the trip to the South Seas for the purpose of filming "Passions of the Sea."

It seemed to me everyone was working hours overtime in preparation, even the shadow of the blacksmith played in ghostly shape on the time clock—for we needed spears and plenty of them.

Right in the midst of all this excitement, they told me to leave the Rupert Hughes company, pack my camera and go along. Well, the first thing I did after regaining my breath was to find a globe.

There were Milton Gardner and R. A. Walsh, the director, running their fingers down between the 190 and 150 meridans, on past the equator, stopping about 18 degrees south.

Cannibals?

An amusing expression ran around their faces, I fancy one was thinking of a boiling hot sun, possibly the other a large steaming kettle, with black-faced warriors dancing around.

The greater part of our freight was sent to San Francisco on the steamer Yale and then transfered.

On July 5th, truck loads of trunks were unloaded at the Southern Pacific station, while the company, composed of Milton Gardner, R. A. Walsh, Pauline Starke, Myrtle Linn, Mary Jane Irving and mother, Rosemary Theby, Antonio Moreno, William Mong, George Seigman, Carl Harbaugh, William Haynes, J. O.Donoho, assistant director; Claud Rudd, property man; Pat Powers, mechanic; Charles Holbrook and Roy Vail, constructors; Clyde De Vinna, first cameraman, and myself on second camera, gathered for the much-talked-of trip.

After the last goodbyes had been said, a conductor's hand waved above his head and while a few tears ran down over unmade-up cheeks, the lights of good old Los Angeles vanished in a slow fade-out.

Late in the afternoon of the seventh, we were in the 'Frisco harbor and the last of our 82 tons (by measure) of freight, composed of the necessary props, developing tanks drying drums, chemicals, 100,000 feet of negative, etc., were swung over the side and down into the hold of the Tahiti, a steamship of 7841 tons displacement.

"They're Off"

The great ship swung around and headed westward, while a fog almost hid San Francisco from view.

South Sea Sunsets

As we passed through the Golden Gate great fog horns sent out their warnings..

At last one of those boyhood dreams of "going through the Golden Gate" had been realized. A cold wind was sweeping the starboard side and almost blew us off.

We watched the crew button down the hatches and cover the freight with canvas, only to be climbed on by children from the steerage.

On one side of the deck was a shed built for a cow, on the stern deck near the compass lay a crate of chickens and some plants for New Zealand.

At 5:45 p. m., just as the good old U. S. A. faded from sight, we felt the throbbing of the triple expansion engines stop.

On the starboard side came a sailboat to take off our pilot. Everyone watched him as he descended the ladder, swung out on the rope, and landed in the center of the small rowboat.

For 12 days we sailed through an unbroken silence on an empty desert of an ocean. The two lights of a tramp steamer were the only friendly signs that came our way.

The time was spent in playing games, races, or guessing the number of miles run each day. The average was 335 miles.

Of course the crossing of the equator, while invisible and not celebrated, was very exciting to us "first-timers."

Tahiti in the Offing

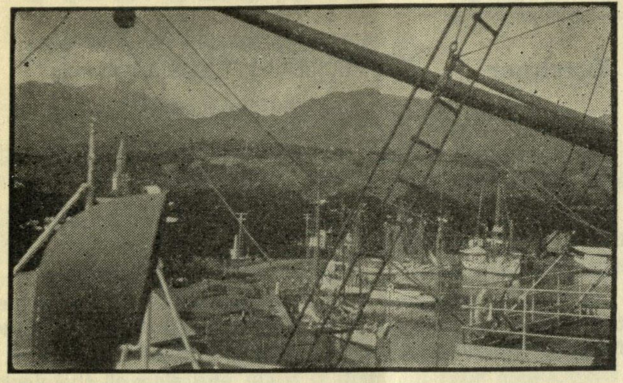
On the morning of the 18th, two great islands loomed up ahead of us. Their great mountainous height—around 8000 feet—attracted so much attention that the breakfast tables were deserted.

One island was Murea, the other was Tahiti, our destination. Cloud formations, like great kernels of popped corn, hovered over both islands, so you can imagine that bridge full of clicking cameras, which reminded me of a distant machine gun.

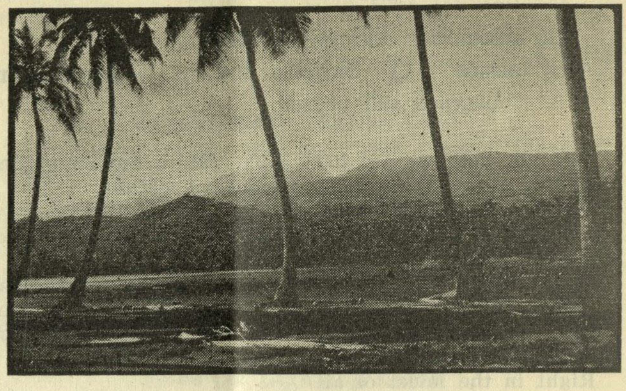
The channel entrance is through a coral reef that circles the island some thousand feet off-shore. This affords a wonderful protection from the giant waves and sharks, and is a good place for the fisherman. Once in smooth water the reflections and views were wonderful.

At the top of this island, where the mountain ranges come together, is a great opening called the "Diadem." Between the mountain sides are beautiful valleys; some falls with 600-foot drops, and all of them are filled with wild chickens as well as oranges that are the sweetest I

Port of Papeete

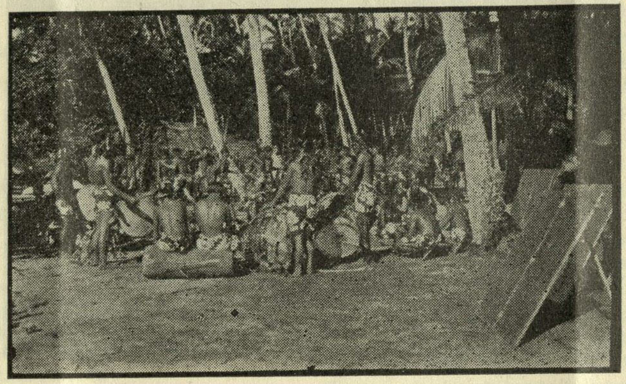


Camera Captures Distance



have ever eaten. Bread fruit, mangoes, banana, cocoanut palms and all kinds of fruit grow to the very water's edge.

Ready for the Feast



Papeete

Hidden amongst these beautiful tropical settings are the white buildings of Papeete, a town of 3000 people of different nationalities, all of good nature and happy smiles, a place where ease and leisure rule supreme.

The streets are about 30 feet wide and well macadamized. The business section is composed of two-story buildings, occupied chiefly by Chinese merchants, who are rapidly taking possession of the island.

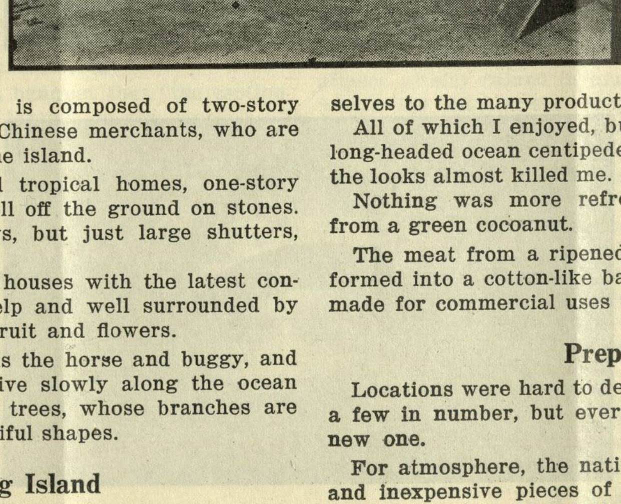
The residences are like all tropical homes, one-story with large porches, setting well off the ground on stones. Very few have glass windows, but just large shutters, instead.

The better class have large houses with the latest conveniences, plenty of native help and well surrounded by spacious lawns well set with fruit and flowers.

The chief method of travel is the horse and buggy, and what a pleasure it was to drive slowly along the ocean under a continuous canopy of trees, whose branches are bent and twisted in most beautiful shapes.

A Bicycling Island

I dare say the majority ride bicycles, there being no street cars. The few autos bother you little when walking, for we all used the road, as there are no sidewalks.



The people are not dark, but a light brown. They are very athletic. The climbing of the palms and the continuous barefootedness have given them very wide feet.

The better class wear white clothes, but the poorer class wear the undershirt, trousers of blue denim and a home-made hat of either bamboo or palm leaf.

The women are well shaped and straight as an arrow. They wear baby-waisted mother hubbards, no corsets, and seldom, shoes and stockings during the day. The hair is done up high on the head with a few pretty flowers for embellishments. In the evening, however, the long waving tresses, well combed, fall over the shoulders.

All bathe at least once a day. Many times when we were waiting between scenes they would all run in the ocean and play like children in joyous groups.

Native Foods

The food, of course, had a new taste to us. It was only necessary to accustom ourselves to the many products of the cocoanut and fish.

All of which I enjoyed, but when it came to eating those long-headed ocean centipedes, while the meat was delicious, the looks almost killed me.

Nothing was more refreshing than the water, drunk from a green cocoanut.

The meat from a ripened cocoanut, after the water has formed into a cotton-like ball, makes good food. From it is made for commercial uses a preparation called "Copra."

Preparations

Locations were hard to decide on, not that they were only a few in number, but every way you turned you found a new one.

For atmosphere, the natives dressed in cool, convenient and inexpensive pieces of red and white cloth, three by four feet, wrapped around the body. On their heads they wore wreaths of shells or pretty, scented flowers.

In preparation for the picture, natives, boats, bamboo, etc., were gathered from all parts of the island to build our villages and temples.

The lashing together of the framework with long strips of bark was very interesting. To cover the framework, they tied a braided palm leaf. They started at the bottom of the frame, tying them on like shingles. This makes a very cool, water-proof hut.

The Feast

Then came the feast. Barbaric dances, rapid with quick movements of the

(Continued on page 20.)

Recovering Silver from Fixing Baths

Authority reveals means of alleviating heavy laboratory expense.

By Dr. Alfred B. Hitchins
Ph. D., F. R. P. S., F. C. S.

Head of Ansco Research Laboratories divulges valuable formulas.

In a laboratory devoted to the finishing of moving picture film enormous amounts of hypo fixing solutions are used. The spent baths are very rich in silver, yet it is surprising how few laboratories make any effort to recover the silver. It is a very simple matter to recover the silver in a profitable manner.

In precipitating silver as sulphide from a hypo bath any one of three substances may be used:

Potassium sulphide (not monosulphide), having the formula $K_2S.5H_2O$.

Potassium sulphuret, having a variable composition.

Sodium sulphide, having the formula $Na_1S.9H_2O$.

In choosing one of these substances it must be remembered that it is the sulphur that brings about precipitation and nothing else in the compound.

The amount of reacting sulphur in each of these three substances is as follows:

Substance	Per cent Available sulphur
Potassium sulphide, $K_2S.5H_2O$	16.00 (theoretical)
Potassium sulphuret (no formula)	12.79 (determined)
Sodium sulphide, $Na_2S.9H_2O$	13.35 (theoretical)

It is therefore evident that of these three compounds potassium sulphide contains the most sulphur, but the price of potassium compounds makes them too costly to be considered. The following, taken from a chemical catalogue, gives a recent price for the three materials:

Potassium sulphide	.75
Potassium sulphuret	.68
Sodium sulphide	.27

Therefore in purchasing sodium sulphide one is paying 2 cents per cent. for sulphur; for potassium sulphide 4½ cents per cent. sulphur, and for potassium sulphuret 6 cents per cent. sulphur. With these facts in mind it is obvious that sodium sulphide must be used as a precipitant where cost is a consideration. Adding a saturated solution of sodium sulphide to the hypo bath in slight excess will completely precipitate silver as silver sulphide with minimum cost and labor.

In these days most hypo baths contain alum, and therefore a small amount of aluminum is carried down with the silver; however, there is not enough to become a serious matter. If it is desired this aluminum can be got rid of as follows: A small amount of ammonia hydroxide is added to the hypo bath until a faint odor of ammonia is noted. The solution is then stirred well, and the aluminum hydroxide, which precipitates out, is allowed to settle, filtered, and washed with hot water, the washings being added to the major portion of the filtrate. For all practical purposes there is no need to separate the aluminum; it may be allowed to precipitate with the silver and will be carried down as aluminum hydroxide.

Wooden or Earthenware Vessel Best

Most hypo baths are acid and there is no need to add any acid to the hypo solution previous to precipitating with sodium sulphide. A wooden or earthenware vessel is best to use; no metal receptacle should be used, as some silver is lost by deposition. The saturated solution of sodium sulphide is added until all the silver is completely precipitated as silver sulphide. This may easily be determined by allowing the sludge to settle, leaving the supernatant liquid clear, then running in a small additional amount of sodium sulphide solution If more sludge is formed, the silver has not been completely precipitated and more of the sulphide solution is added.

The precipitating vessel should be fitted with a tap, some 5 or 6 inches from the bottom, so that when the silver has all been precipitated and settled the supernatant liquid can be drawn off and further waste solutions treated. When a sufficient amount of the sludge has collected at the bottom it can be washed with cold water by decantation and poured into some suitable container in which it can be sent to the smelter. Some methods have been suggested of recovering silver by deposition upon brass or copper. This, however, is not at all satisfactory. For one thing the deposition is very slow, a complete recovery of the silver not being possible in reasonable time.

Amount Recoverable

A number of determinations have been made of the amount of silver recoverable from fixing baths, and allowing for the different amount of work done by the various baths an average of 0.7375 grams per 1000 cc. of bath was obtained. For those interested in the chemistry of the reactions and a description of the method of determining the silver content of a hypo bath the following is given. The usual acid fixing bath contains, in addition to hypo, sodium sulphite, acetic acid, and alum. In a used hypo bath there are present the following substances:

$$Ag_2S_2O_3.Na_2S_2O_3,\ Na_2S_2O_3,\ NaBr,\ Na_2SO_3$$
$$Al_2K_2(SO_4)_4.24H_2O,\ HC_2H_3O_2.$$

The usual Volhard's method for the determination of silver cannot be used on such a bath without a modification. If the bath were made distinctly acid with HNO_3 for a direct titration with NH_4CNS, sulphur would be precipitated from the excess $Na_2S_2O_3$ and consequently interfere with a correct titration.

The modified method of analysis is as follows: 100 cc. of the bath are measured into a beaker and made slightly ammoniacal with NH_4OH. The solution is heated slightly and the $Al(OH)_3$, which precipitates is filtered and washed thoroughly in hot water. By this means the aluminum in the alum is got rid of. To the filtrate a small excess of sodium sulphide in water solution is added, the following reaction taking place:

$$Ag_2S_2O_3.Na_2S_2O_3 + Na_2S = Ag_2S + 2Na_2S_2O_3.$$

The Ag_2S precipitates, leaving the excess Na_2S and $Na_2S_2O_3$ in solution. The substances in solution are separated from the Ag_2S by filtration and a thorough washing of the precipitate with cold water. Hot strong HNO_3 (1 : 1) is now run through the filter paper containing the Ag_2S. This procedure with HNO_3 is repeated until nothing but sulphur remains. The following reaction takes place:

$$Ag_2S + 2HNO_3 = AgNO_3 + H_2S.$$

The solution is gently boiled to get rid of H_2S, although part is oxidized to free sulphur, which remains on the filter or comes through in a colloidal state. This latter fact does not interfere with correct results. The solution is next titrated with $\frac{N}{10}$ NH_4CNS, using 5 cc. of a saturated ferric alum solution as indicator. The first permanent tinge of pink is taken as the end point.

The computation to determine silver content follows:

Ag titre of NH_4CNS X No. of cc.
NH_4CNS = grams Ag in 100 cc. of bath.
(No. of cc. of bath ÷ 100) X grams Ag in 100 cc.
= total grams of Ag in bath.

If only an approximate estimate of the amount of silver recoverable is desired, it may be obtained by weighing the dried silver sulphide. 1.148 parts by weight of silver sulphide is equivalent to 1 part of metallic silver.

The Editors' Corner

—conducted by Foster Goss

WHY NOT?

"The personal appearance craze reached its climax in the East some time ago when a cameraman addressed a theatre audience."

The foregoing paragraph, in effect, appeared in print recently. Without arguing the merits or demerits of the "personal appearance craze," it may be asked, that inasmuch as this form of theatrical attraction is in vogue, why shouldn't the cinematographer be included among the production individuals who make such appearances?

More important than personal appearances, if a comparison may be struck, are the interviews which are printed in the newspaper dramatic sections, especially those of Los Angeles and New York City. It has become customary for dramatic critics in production centers each week to interview players, sometimes directors or producers, and more rarely scenarists when a production with which such people may be affiliated is scheduled to be exhibited at one of the local theatres during the following week. Such interviews invariably attempt to set forth the motion pictures ideas, views and theories of the person under discussion. That writings of this sort are read by a goodly portion of the newspapers' subscribers is admitted, and hence have their influence on the opinions formed by the cinema public. Another form of interview is that which is broadcasted by various studio publicity departments to the interior newspapers which are removed from the hub of film making. These stories are confined, of course, to those people in which the publicity departments in question may be interested.

General usage, therefore, has brought about a condition whereby the interview is as much a part of the "big, week-end" dramatic sections as the critics himself is. But it is a matter of fact that several leading dramatic critics have interviewed virtually every star and director of note, recent or retired, and cannot in the interest of news or feature value repeat interviews with such people. And, to quote one respected California critic: "Why should I waste my time and my newspaper's time in talking to a flapper actress who has no ideas which would make a story for the dramatic page?"

Why not interview the cinematographer?

If there is any one who possesses ideas, views or theories concerning the motion picture art and industry, it is he. He could not be a successful man in his calling if he had not attained a wealth of scientific, artistic as well as practical knowledge. Interviewers—if interview they must—who discuss with him a production in particular and conditions in general will not have to resort to "padding" to supplement incomplete ideas, views or theories. Also, theatre attaches, who are always proposing and eager to arrange interviews, have to date been consistently overlooking the timber that the cinematographer offers. This is a tip.

As for the studio publicity departments, the current state of affairs would seem to indicate a preponderance of attention may be reaped by giving consideration to the cinematographer in the material that is circulated directly or by press-book, and designed for publication in the interior newspapers, the editors of which will welcome a departure from the ordinary cut-and-dried stuff—which the efficient publicity man, too, is ever trying to avoid. Within the past several weeks one publicity director has had his enterprise rewarded through widespread re-publication of an article of which the accomplishments of his organization's cinematographer were the subject.

AN INVITATION

The American Cinematographer will follow with interest the proceedings of the convention of the Society of Motion Picture Engineers in Rochester this month.

The purpose of the Society of Motion Picture Engineers—"advancement in the theory and practice of motion picture engineering and the allied arts and sciences"—has been steadily carried out since the inception of the organization. Its conventions bring together some of the greatest minds associated with the motion picture industry. The research work revealed at such meetings is contributing much, as time will tell, in the evolution of the cinema. In short, the Society of Motion Picture Engineers is to be commended not only on having an admirable purpose but is to be lauded for having a progressive membership which is more than carrying out that purpose.

It is an honor, therefore, for a city to be selected as the convening place of the Society of Motion Picture Engineers. What could be more appropriate than the selection of Los Angeles and Hollywood as the next convention city of the S. M. P. E.? The California metropolis is the capital of the motion picture industry and meeting there, S. M. P. E. members would be able to inspect and observe cinema production at first hand. Men prominent in the research and similar phases of the industry will be enabled to come in personal contact with those actively engaged in production, all of which will make for closer relationship and hence greater things in the calling.

If Los Angeles and Hollywood—it must be remembered that the latter community is within the corporate limits of the former and is as well, the hub of the studios—are chosen, the S. M. P. E. may be assured of the fullest co-operation of the Los Angeles Chamber of Commerce and the Hollywood Chamber of Commerce, both of which are live-wire bodies which would welcome such a convention to their communities.

The American Cinematographer believes the suggestion of Los Angeles and Hollywood as the meeting spot a logical one, and hopes that the S. M. P. E. wil find it possible to convene there. While the majority of the members of the S. M. P. E. are located in the East and the trip to California is comparatively long, the journey would be well repaid if it were only for the beauties of the American Southwest.

"NOT CREDITED"

In compiling a list of the releases for the month, the American Cinematographer exercises all means to ascertain who photographed such productions before billing them as "not credited." Very often the cinematographers in question are not given screen credit, but by going to other sources of information, this publication is able to present the names of those who were responsible for the camera work.

Some one, of course, photographs every production and should have credit for his efforts. If, therefore, the American Cinematographer is unable to present the names of the cinematographers of some of the releases, this magazine will deem it a privilege to publish such names in a following issue on receiving signed communications from cinematographers of such releases recording their connections therewith.

Man gambles years of achievement against minutes of passion and usually loses.

No man need to be ashamed of humble origin.

Can Movies Teach? —Final Installment

By Rowland Rogers
Instructor, Motion Picture Production, Columbia University.

Opinions offered on instructive power of films. From the transactions of the Society of Motion Picture Engineers.

Nor do teachers generally understand the medium and technique of the movies. As time passes this gap will be bridged. Then we may expect instructional pictures which have high artistic and pictorial value, which are motivated by appeals to the instincts, reason or emotions.

However, a fair start has been made to use movies in teaching all five branches of knowledge we are considering. Today movies teach geometry, English, biology, certain classics and some of the fine and household arts.

Film Divisions

The movies have developed a photographic and production technique of their own. **Every method devised and developed in the entertainment movie may be used as a tool for instruction.** So we see straight motion picture photography used in news weeklies, geographical and travel pictures. Trick photography is used in scientific pictures. Cartoons are used to add spice and freshness to the presentation of a subject which might otherwise be dry. Motion picture analysis discloses action occurring too rapidly for the eye to detect.

The movie camera has been lined to the microscope and the telescope. Animated diagrams or technical drawings photograph the invisible. They show mechanical, electrical, chemical or molecular action as it is seen or conceived by the trained or scientific mind. The close-up, the dissolve, the fade-out, the long shot—all are tools for the visual instruction picture.

Motion pictures dealing with the following subjects have been, can be, or are being made at the present time:

INSTRUCTION (Education)

1. History
2. Geography
3. Natural Science
    (a) Botany
    (b) Astronomy
    (c) Physics
    (d) Chemistry
    (e) Biology
    (f) Zoology
4. Mathematics
5. Religion
6. Philosophy
7. Useful Arts
    (a) Medicine
    (b) Surgery
    (c) Agriculture
    (d) Domestic Science
    (e) Communication
    (f) Chemical Tech.
    (g) Manufacturing
    (h) Mechanical Trades
    (i) Building
8. Fine Arts
    (a) Landscape Gardening
    (b) Architecture
    (c) Sculpture
    (d) Drawing and Design
    (e) Painting
9. Literature
10. Sociology
    (a) Political Science
    (b) Economics

Limitations

Here are some of the limitations of today's movies. First, is the lack of color. Someone will promptly say, "We have natural color, tinting and toning." Quite true. Yet even the best of the color pictures which are commercially possible are made with the two color process and so do not fully represent actuality. To date very few natural color pictures have been used in instruction. The rapid progress being made in the production of color pictures affords a promising outlook.

Tinting and toning at best are merely an approach toward, but not the reproduction of actuality of color.

Second. Movies are in two dimensions only. There are many promises of pictures with the third dimension. It is entirely thinkable that within the near future there will be devices which will either make or project pictures so that they will give the third dimension—depth. While the two-dimension picture is acceptable, the lack of depth constitutes a genuine limitation to the reproduction of actuality.

Third. Motion pictures do not reproduce sound. While the "talkies" are making progress, they have not been used extensively. There is one promise that the movies may be synchronized with the radiophone. Another promise is that the film itself may carry the sound record so that movie and sound may be reproduced simultaneously.

Fourth. The movies, of course, do not appeal directly to the senses of taste, smell or touch.

Fifth. The movies, being dependent upon photography, must depend upon light. No movies can be shown of what takes place in the darkness.

Disadvantages

The main disadvantage with the movie for instruction seems to be the rapidity with which it tells its story. The eye appeal of a certain scene may be so flitting that it fails to make a convincing mental impression. Again the rapid shift from scene to scene may pile up an incoherent series of impressions which quickly fade away. This difficulty, of course, can be overcome to some extent by change in editing and in the method of use. For instruction a scene or shot can be repeated as often as is necessary to cause the right mental impressions. The fact that movies may be used as tools to present sensational, coarse or unworthy ideas is no real argument against the movie itself. The control of the subject matter of motion pictures rests with the same source which controls the printed or spoken word and still photography.

Proofs Through Tests

The primary need today of the movie for instruction is the test of its utility. Before schools invest large sums in projectors and films, the scope of the movie should be evaluated and its proper method of use determined. Research and tests can be conducted to ascertain the determinable facts. Two sets of tests with which I am familiar have been made. The results are most interesting.

Professor J. W. Shepherd of the University of Oklahoma, during 1920, found these results from tests:

In the spring of 1920 he conducted a test on about a dozen pupils of average intelligence in one of the high schools of Madison, Wisconsin. Abstract and concrete subjects were taught to one group by means of films only, to another group by a superior instructor and to another group by an average instructor. The film scored an average of 74.5 per cent, the superior teacher an average of 66.9 per cent and the average teacher, 61.36 per cent. In other words, the film bettered the best teacher by 6.6 per cent and the average teacher by 12.14 per cent.

Professor Joseph J. Weber of the University of Kansas, during 1920, conducted a series of tests in Public School No. 62, New York City. The following is a result of one of his experiments:

Four hundred and eighty-five pupils in Public School No. 62 were examined as to their knowledge of geography. When the experiment began, all pupils had an average knowledge of about 31.8 units. This standing they had gained from the knowledge of their geography prior to the experiment. From this starting point (31.8 points)

(Continued on page 22)

Double Exposures of the Early Days

Concluding Number

By Otto Brautigam

Additional experiences with double exposures in pioneer days recalled. Lack of equipment was handicap.

In 1913, Charles Brabin, director; Marc McDermott and Miriam Nesbitt made an European tour. I was sent a week ahead to Paris to examine and report on the "Debrie camera." It resulted that they ordered one for me. That was Heaven! A camera you could look through and see what you were doing without bruising your dome against its interior mechanism; one that would wind back; one that had interchangeable aperature plate masks; one that would change focus or make dissolves without necessitating my yelling for help.

In the "Price of a Necklace," we showed a big close-up of one pearl of the necklace resting on black velvet; then a wild panic on the stock exchange faded in around the pearl and following that four scenes of misery caused by the panic dissolved one into the other inside the space occupied by the pearl, and then all fading out again back to the pearl on velvet.

Jacks of All Trades

All we required were a pair of opposite aperture mats, but we had no well-equipped machine shop or mechanical expert on that work as all studios have now. If we wanted anything, the slogan was "make it yourself." My early training as mechanical engineer came in handy. I rigged up a bench beside my camera, filed and scraped and fitted and tested photographically for 24 hours straight through until my masks matched.

Director Brabin sprung this one morning, "Going to make a scene of Cooper telling Miss Nesbitt how he won his medals. I want a vision over their heads showing him leading a charge in battle. We have such a scene already made, but it is in another picture. Can we put it into ours?"

I rigged up a device and copied that print, frame by frame, reduced onto my negative.

In the next picture we showed a close-up of Marc McDermott thinking over his misspent life and showed four scenes fading in and out in circles around his head, all copied from previously released films.

All Off at 5:25

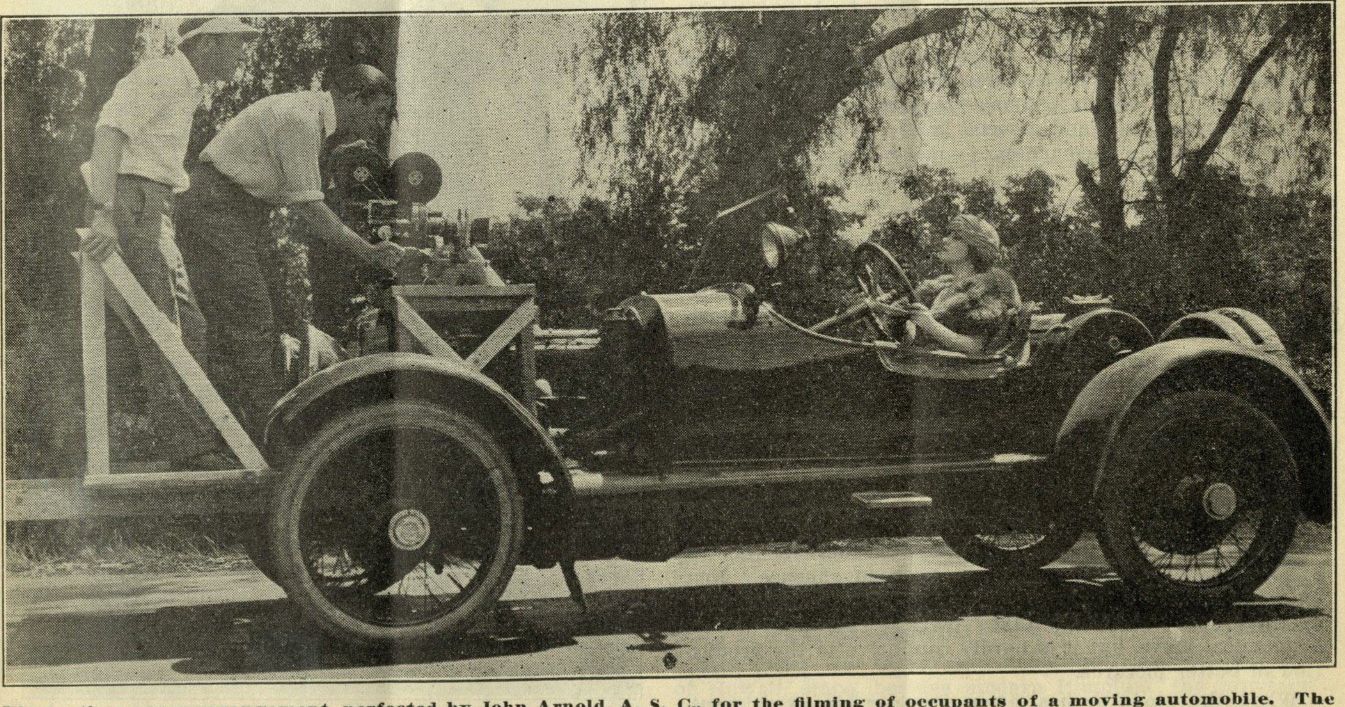
Some scenarist had a brilliant idea. A story hinging on the hero painting the hands of a clock in a high tower. Villain shuts door in dial of clock. At 5:25 hero slides off to happy hunting ground. How to show hero on high clock hands? Let the cameraman do it. Double exposure, of course. The maker of beautiful and exact miniatures had not arrived yet. I set up in a window on the fourth floor of the Fifth Avenue building and shot across Madison Square Park at the Metropolitan tower obtaining a long shot of the clock and tower, but in my negative the clock dial was missing. I accomplished this by making a test, developing and drying it; and then carefully cutting out the clock dial, painting it black and cementing it in the aperture plate exactly over the image of the clock.

Troubles

A full size reproduction of the clock dial was made and erected on the ground, but the plaster worker had not entered into the business yet, so instead of being in bas-relief it was painted on the flat boards and spoiled the effect. To reduce painted reproductions to the exact size and in its exact place in the negative of the tower was no cinch. To make it nicer the window from which I had to shoot was a long way from being directly opposite the tower so that I had a horizontal as well as a vertical angle to contend with. The vertical angle I measured with an inclinometer, and had the reproduction leaning backwards accordingly, but the horizontal angle had to be arrived at by trials.

The actor thought that leaning backwards was for his benefit, so that he would not fall off the hands and thanked me for my consideration.

(Continued on page 17.)



Illustrating a new arrangement, perfected by John Arnold, A. S. C., for the filming of occupants of a moving automobile. The old method is to lash camera and tripod to platform built on front of car. By Arnold's arrangement, platform on which cinematographer and director stand, is built on chassis; the camera, without tripod, is attached to another platform, built over engine and supported by wooden shafts secured to the frame. In this manner, if camera is jarred, it does so in unison with motion of automobile and the result is a steady, non-jolting view of occupants of car. Arnold put the arrangement into effect under a speed of of 60 miles an hour during filming of Metro's "June Madness," starring Viola Dana and directed by Harry Beaumont

A Plea For Organization

By H. Lyman Broening
A. S. C.

Disbandment of production personnel seen as serious mistake. ¶ Regular staff makes for efficiency.

The picture industry is divided into two classes: the permanent producer and the transient producer.

The former, in some respects, has a decided advantage—the advantage of organization. The individual who is employed by the year works to keep himself in a job; the individual who is employed by the picture, works to get himself out of a job—that is, he is always looking for another or better job. The greater the number of permanent producers, the more stable the industry and the greater the incentive towards organization.

The success of a government, corporation, business or industry is greatly dependent upon organization. There is no greater example of what organization can do than as illustrated by the moving picture industry. Each individual, though highly skilled in his or her particular contribution towards the art, may be an utter failure where there is a lack of co-operative organization. By way of example, we might compare a producing unit to a piece of machinery. Though the gears may be most skillfully cut, it will always run a bit stiff at first, but after a little operating the rough spots wear off and we have smooth running.

Need Not Always Answered

In the making of motion pictures the crying need of organization has not always been answered, with the result of an inferior product. A complete and harmoniously operating unit cannot always be thrown together at a moment's notice, though this seems to be the custom in vogue with many independent companies. In other lines of industry, in many instances, years have been spent in the building up of a successful organization. Not so in the movies. There is a constant chopping and changing about of technicians, and staffs are organized and disorganized with lightning rapidity. A producer surrounds himself with a group of specialists—the best available at the time he is ready to begin operations, usually at the very last moment. These individuals are hastily thrown together. In numerous cases they are total strangers to each other. They are expected to become thoroughly organized over night and be ready to be in harmony the next morning. Sometimes this is accomplished, but in nine out of ten cases it just can't be done! Then comes the usual agony and the struggle is on. Hiring, firing, replacements, misunderstandings, hard luck and general grief in the ranks. Not necessarily due to incompetency—more likely due to lack of organization.

Next Stage

The next stage is reached towards the middle of the production. Things begin to settle down to normal. Each understands the other. Much time is saved and expense avoided. Each individual has fitted himself into his position and the rough spots are gradually eliminated. The results of organization commence to show in the quality of the day's work and the increased speed of operation. The director, cameraman, assistant director, technical director, electrician and property men finally combine in forming a high-powered unit.

The Crash

Alas, then comes the inevitable crash. The picture reaches the finish and immediately or thereabouts, all hands are fired, to cut down the overhead expense. Just at a time when the troupe was giving the best it had, a complete disorganization takes place. This may be an economical move, but it is hardly conducive to the production of better pictures.

When the producer has, after considerable experimenting, surrounded himself with a capable organization, we hope he will retain it.

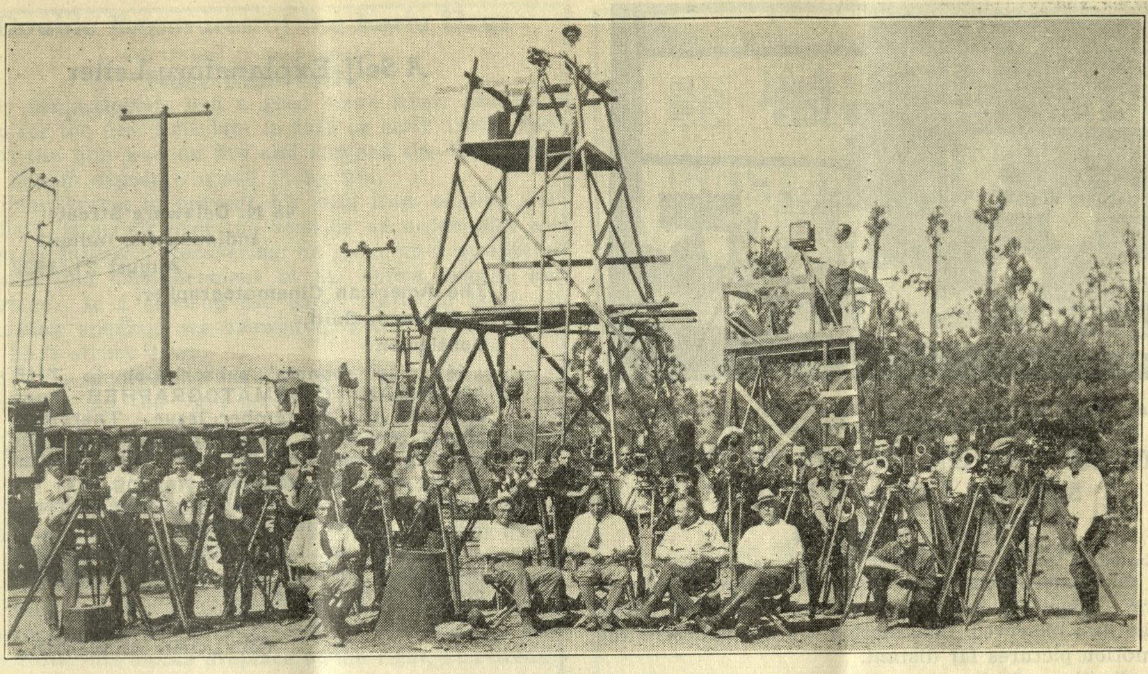
Organization wins.

ARTHUR EDESON AND COMRADES HAVE CLOSE CALL IN ANGRY OCEAN

Arthur Edeson, A. S. C.; his assistant, Richard Holohan, and two boatmen struggled for five hours against the elements when they attempted to put out in a wind-ridden ocean to return to a launch which lay beyond dangerous breakers after having conveyed them to Abalone Point, Calif., where re-take scenes were taken on a 200-foot cliff for Fairbanks' "Robin Hood."

The small boat in which they were rowing almost capsized several times. After Edeson and his comrades finally did succeed in pulling through the breakers, the craft contained so much water that the launch had to be signaled for assistance. Previous efforts to attract attention of those aboard the launch had been frustrated by the violence and height of the breakers. Camera equipment valued at $3000 was badly damaged.

Arthur Trimble, starring in his own productions, has another ambition besides to be a good actor—he wants to become an ace cinematographer as well and asserts that he takes pleasure in studying the intricacies of the camera.



Twenty Cameras For Forest Fires

Adequate use of cameras regarded as sound policy for telling story faithfully in motion pictures.

Twenty cameras were used recently in the filming of the forest fire scenes in Reginald Barker's production, "Hearts Aflame," for Louis B. Mayer. This is one of the greatest numbers of cameras ever used in a single production and is in line with a policy to employ photography to the utmost in telling a story through films.

The twenty cameras were operated simultaneously in eight different positions in the filming of the principal fire scene. The positions were so divided that seven of two cameras each were used to record dramatic episodes, while a battery of six cameras were making a long shot of the entire conflagration.

The twenty cinematographers, the cast and others present were in danger, throughout the filming, of serious injury from burns. Virtually every one of the cameras were operated directly in the path of the flames. The danger to the men who turned the cranks is evident. All of the cameras were protected against fire with blinds.

Three Nights For Testing

Lycopodium was used for forest fire lighting in scenes not actually made around the flames. Three nights were spent in testing oil and the gasoline and distillate mixture, which were used in saturating the trees and excelsior, in order to secure the right kind of flame for photographic purposes.

After the main fire was photographed, the line of trees alongside the railroad, which runs through the forest, was rebuilt.

While the Flames Licked

The locomotive was then sent through the fire again, Allen Seigler, Eddie Linden and Harry Vallejo grinding away for close-ups in two asbestos-lined cabinets erected on either side of the boiler. The four, together with Anna Q. Nilsson, who acted as engineer, and Craig Ward, who served as fireman, suffered burns about the face and hands.

A Fiery Minute

Although little more than a minute was spent in the fired area, the cabinets gave the appearance of two immense torches as the locomotive came out of the flames —and the cinematographers were on the inside.

All of the wood used for stripping on the boxes was burning, and the floors of the cabinets were dangerously near to being burned through.

It is said that this is one of the most daring pieces of camera work ever attempted. The scenes were taken in the San Fernando valley, near Los Angeles, California.

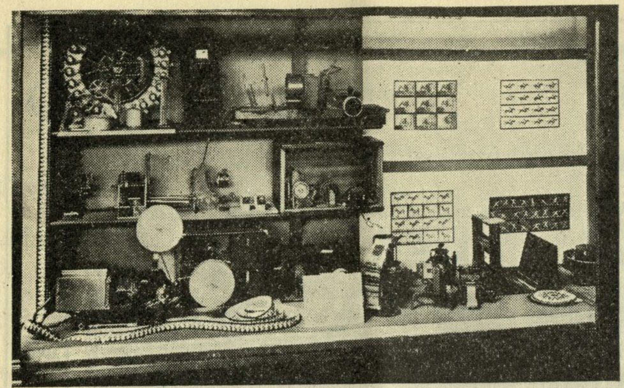
Several members of the American Society of Cinematographers shared largely in the achievement. They were Allen Davey, Sam Landero, Reginald Lyons, Alois Heimerl, Lyman Broening, Norbert Brodin and Allen Seigler.

J. C. VAN TREES, A. S. C., LEAVES FOR HAWAII TO FILM JULIA CRAWFORD IVERS PICTURE

James C. Van Trees, A. S. C., left Los Angeles on September 23 for Hawaii, where he will remain two months to photograph, "The White Flower," starring Betty Compson, and written and to be directed by Julia Crawford Ivers.

Electricians, carpenters and painters with lights and other supplies are making the trip. Additional technical workers will be recruited when the party arrives in Honolulu. Interiors as well as exteriors will be made on the island; the production will be completed with two weeks' work at the studio when the company returns to Hollywood.

Van Trees will carry his camera well into the interior of Hawaii, since, besides modern Honolulu, the territory surrounding the volcano of Kileaua will be the background for the picture. Van Trees will be further called on to film natives in primitive environment and to record in celluloid their customs and religious rites.



Partial view of Smithsonian Institution collection showing evolution of cinematography

FILM EVOLUTION SHOWN IN SMITHSONIAN COLLECTION

By A. J. Olmsted

Custodian, Section of Photography, U. S. National Musenm

From the camera obscura to modern cinematography is a far cry. When the projection of images in a darkened room was first observed, imagination did not conceive the day of motion pictures far distant.

The collection of the cinematographic exhibit of the United States National Museum, Smithsonian Institution, Washington, D. C., is rich in the early beginnings of the art, having among other specimens that of the wheel of life or zoetrope—a toy with an open revolving cylinder in which are placed a series of related pictures. The revolving of the cylinder produces an animated or life-like action to the picture. Thus the beginning was an effort to amuse.

Muybridge Apparatus Secured

Muybridge, known as the grandfather of motion pictures, had a more serious object, that of the study of the analysis of motion in animals. His early work was done in California. The more serious part of his experiments were carried on at the University of Pennsylvania, where it was supported by an appropriation of some $40,000. Muybridge succeeded in projecting his pictures from glass positives revolving on the circumference of a wheel and gained distinction for his researches in America and Europe. The result of Muybridge's work was published and the collection contains a full set of these plates with many duplicates. Commercial Museum recently presented some of Muybridge's apparatus, including original cameras, plate holders; and a battery of cameras, the shutters of which were operated by an electrical timing device, making possible very rapid exposures, and many other things relating to his work—all of which are highly prized.

An old mutoscope, or device operated by dropping a coin in the slot, is in operation and well illustrates an early effort to amuse and obtain animation in pictures. It is a simple machine consisting of a series of prints on paper mounted on the rim of a rotating cylinder similar to the leaves of a book, a stop being so placed that single pictures are viewed in rapid succession and a semblance to motion secured.

The major part of the exhibit is composed of the C. Francis Jenkins collection of experimental apparatus. It consists of early perforating, developing and printing devices used by him. Roll film for pocket cameras being purchased and slit to the required width for experimental purposes, the short lengths of such rolls were detrimental to photographing any very long-continued action, but were made to serve for experimental and laboratory practice.

There are also in the exhibit multiple lens cameras and multiple lens projectors, the later development of which Mr. Jenkins has perfected as high speed cameras used for the analysis of motion on such subjects as propeller blades and projectiles fired from long range cannon.

(Continued on page 24)

A Self-Explanatory Letter

48 N. Delaware Street
Indianapolis, Indiana
August 21, 1922

The American Cinematographer,
Hollywood, Calif.

Gentlemen:

My four months' subscription to THE AMERICAN CINEMATOGRAPHER runs out with the September issue. Therefore, please renew my subscription for one year starting with the October issue. Also, please send the magazine starting with the October issue to the following new address: Box 527, Williamstown, Mass.

Thanking you for putting out a magazine invaluable to one who operates a motion picture camera, I remain,

Very truly yours,
GAYLORD A. WOOD.

A word to the wise is sufficient

The American Cinematographer—

Herewith find $3.00 to pay for one year's subscription to The American Cinematographer, subscription to begin with the issue of................................, 1922.

Name ....

Address ....

WE BEAT THE SUN
CINEMA STUDIO SUPPLY CO.
1442 GOWER ST.
Holly 819
LIGHTING EQUIPMENT FOR RENT
WIND MACHINES R. (SPEED) HOSTETTER

Double Exposures of the Early Days

(Continued from page 13.)

False Film Fires

Many projectionists had a good scare when running a picture for the first time late in 1915 or early 1916. They thought the film was on fire and stopped the machine. I had a double exposure irised in by fire.

A miner, trying to prevent his wife from eloping with the villain, is struck over the head by an accomplice and is severely injured. Recovering, he picks up a newspaper and reads the announcement of his wife's divorce and remarriage. In a close-up the paper starts to burn. In the burning opening, we showed a double of the scene where he is struck down.

To do this successfully required a lot of experiments in chemistry to get the right solution for impregnating the paper so that it would burn properly and not show any doctoring before the burning started.

The Ghosts Walked

In "The Flight of the Duchess," made for Tnanhauser, I made a double, which was termed "impossible" by everyone I discussed it with. The set represented a long corridor lined with ancestral portraits. Three steps led down facing the camera. A portrait on each side also faced the camera. The Duke, a character, after looking over the portraits, sits at the fireplace at the right, and dreams that the ghosts of his ancestors group themselves around him and laugh at him, while we still see the portraits on the walls. We started with a 70-foot long shot taking in the whole set to show all the portraits and the ghosts coming in a body down the corridor, being joined by others from either side and after the group had formed around the chair we wanted to wheel slowly and continuously up to a nine-foot close-up of the group. This meant moving up with absolute exactitude twice, once for the Duke and again for the ghosts. Just a little problem in mechanics for the photographer to solve. A block and tackle was used to pull the camera truck, to insure smoothness, and by rehearsal we found how many feet of film would be used while traveling the distance, and then I calculated the correct diameter of a winch drum so that when the men turning it kept time to my camera counts the truck would be pulled the right distance.

Much Rehearsing

The electricians were also rehearsed to move in the lights to the right spot at the right count, and by noon the first takes were made. Technical department had assured us they had black velvet enough, but when it came to covering the set with velvet for the ghosts I found it had faded to a light blue grey. Impossible to use and no more to be had on account of the war.

I had to shoot tests for both positions and then strike the camera and truck. We did three days' work in the set O. K. over rushes and then painted the whole set black. Now imagine the task ahead of me—to reset the camera on the truck on both long shot and close-up positions, matching with the set and portrait frames and also resetting the people acting as portraits. It is absolute truth that the whole studio stopped work to watch and laid bets on the result. It must be remembered that the resetting must be absolutely correct or the ghosts would not walk on the floor. Out of three takes one was perfect. The ghosts' feet landed perfectly on the floor and steps. The living figure and the ghosts, although photographed separately grew larger together and remained in focus.

Labor Lost

I did not have much to do only crank the camera, count, change focus continuously, watch that the winch-men kept time, and that the electricians moved in the lights properly for the close. Now comes the laugh. When the picture was released, they cut before the camera started to move up and inserted a long subtitle.

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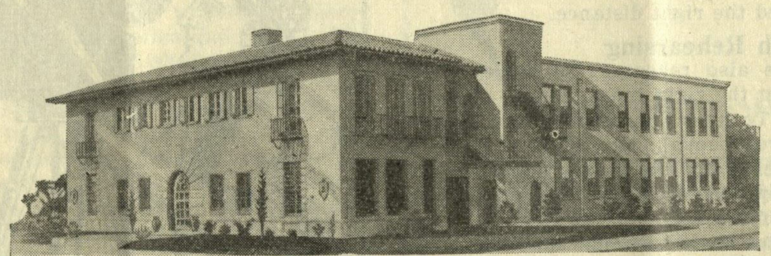

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Cinematography as the Director's Aid

(Continued from page 4.)

Theme Is Supreme

Of course, the theme of the motion picture is supreme and photography is subordinate to it. Subject matter should not be sacrificed for photography. Photography must measure to theme, not theme to photography. But the fact cannot be ignored that photography is the most important factor in the exposition of the theme. Therefore, no production may be said to have reached the maximum in results if its photography is not maximum in results.

An Example

The photograph reproduced herewith is an example of what can be done with the use of lights and shadows. The scene is laid in an oriental temple. The distribution of the lighting carries the eye involuntary to those objects or points on which emphasis is desired. It is calculated that the incense urn in the foreground on the left be noticed first and, second, either the second light patch on the left or the crouched figure of the oriental worshipper on the right, all of which is supposed to lead up to the idol in the background. Mystery, solemnity and height are imparted herein. Height is gained by playing light on the crouched worshipper, as contrasted with the lighted tops of the pillars at the right. Furniture does not aid in putting over effects in this instance, as, it wil lbe noticed, not a single piece is used in the set.

Proposal Made to Entomb Film Until 2109

(Continued from page 5.)

Will Consult Experts

Mr. Hitchins also suggested the names of several experts in various lines who will be consulted as to the proper materials to be used in preparing and packing the film, the projecting machine, the books and other articles to be placed in the vault.

It would seem that the producing company have a man's-sized job cut out for themselves, for they have nothing to guide them save the judgment of the experts.

It is probable that there is no film in the world much older than that of the early nineties (say, 1894, when Mr. C. Francis Jenkins gave the first real exhibition of motion pictures as we know them today in his back yard at Richmond, Indiana). That was twenty-eight years ago, and if Mr. Jenkins still has the picture he showed that day, "Annabelle the Dancer," and if it is still "alive" and in perfect condition for projection, then we know that film can be kept at least for twenty-eight years, and if it can be kept for twenty-eight years, why not for one hundred and eighty-six years or one thousand or five thousand years?

"Motion History"

The Rockett-Lincoln proposal has attracted international attention and universal "Motion History," as Dr. Hitchins so aptly terms it, may eventuate from it. Already the company have supplemented their first move by instructing their counsel to prepare a bill for submission to congress through California representatives, providing for a bureau of films, whose special duty it will be to look after the picturization of the official lives of the Presidents of the United States, so that the generations of the future may see in animated records our chief magistrates in the midst of the events that make up their administrations. This

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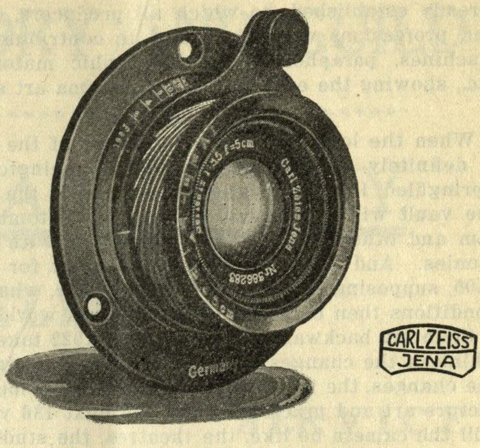

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bill will also include provision for a motion picture museum, probably in connection with some government institution already established, to which all producers, allied trades and professions would be asked to contribute their films, machines, paraphernalia, photographic material, models, etc., showing the evolution of the cinema art and industry.

Films In 2109?

When the location of the depositary of the Lincoln film is definitely decided upon (either Washington, D. C., or Springfiled, Illinois, just now appearing as the logical site), the vault will be constructed and the entombment of the film and other material will take place with proper ceremonies. And when the film is taken out for screening in 2109, supposing it to be all in good order, what will be the conditions then obtaining in the cinema world?

Counting backward 186 years from 1922 takes us to 1736. Think of the changes since then! Now imagine if you can the changes, the improvements, the advancement in motion picture art and practice during the next 186 years! What will the camera be like, the theatres, the studios, the laboratories, the picture itself? Or will there be any motion pictures at all as we know them today? Who can tell?

But at any rate the Lincoln film will bring Lincoln and his times 186 years nearer to the people of 2109 A. D., and if they love him as we of 1922 do, they should be grateful for that. And in the meantime let us hope that "Motion History" will have become the practice of the nations.

Across the South Seas to Papeete and Tahiti

(Continued from page 8.)

body, were danced to the rhythmic beat on hollow pieces of wood, a drum and an old five-gallon oil can.

The native women danced by wriggling their hips. The men far surpass them in pretty dancing and clean footwork with splendid rapid-fire athletic movements.

Their day begins about six o'clock with a cup of coffee and a piece of bread. They have their "breakfast" at eleven, and a real feast around three in the afternoon.

The feast is wonderful. First a hole, six feet wide and one foot deep is dug in the ground. In this is built a big fire of wood and cocoanut hulls.

In the fire are piled hundreds of small stones to heat and just as soon as the fire burns out, cleaned breadfruit, bananas and all kinds of fruit are piled in the pit. Sometimes a young pig is added to roast. The food is then covered with banana leaves.

After an hour or so the leaves are removed and the steaming goodies are laid on a "table" of banana leaves spread on the ground. The native squats "around about" and eats his fill.

The desserts are made chiefly from grated cocoanut and bananas, while the water is served in cups made of bamboo joints.

About this time there would be all kinds of dogs around, each so slow moving and lazy that, I dare say, if you wanted to set your camera where one was you needed only to pick him up and lay him somewhere else, without fear of disturbing him.

South Sea Stuff

In a number of scenes we used hundreds of out-riggers. a native boat hewed out of a solid log, with long sticks of lightwood running parallel to its sides and tied together by curved sticks. This prevented the boat from turning over.

The sixteen-mile channel between the islands becomes

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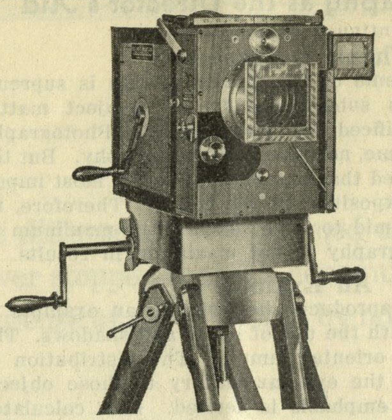

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very rough at times. During one of these squalls our three-mast schooner did everything but a tailspin.

Each one held tightly to the railing, conducting himself as any good-natured seasick person would, and when one of those mile-high waves came along, taking away our galley smokestacks, well, we all lost so much interest that I have little to tell of that incident.

To Church In Papeete

On nights we visited a native church out in the Faaa (Fa-ah-ah) district. Seated on the floor in a circle, in the dim light of three old oil lamps, were the natives.

Around the floor were children and grown-up people asleep on mats and pillows, seemingly dodging a poor sermon.

The singing was the interesting part. The spasmodic rise and fall of the voice reminded me of a band of bagpipers. The endings were always drawn out in a nasal tone, but with splendid harmony.

Just as you would expect them to stop for the lack of wind, some woman's shrill, whiny voice would pipe up and start the whole thing over again.

Our laboratory was located in an old stove building, formerly used by the French garrison. William Hunkley did some nice work with the negative, developing one batch of 1600 feet in the afternoon, then two more batches at night.

The four movie theaters reserved us sections as their guests. They were exhibiting, to our surprise, "The Three Musketeers," and other films of recent release.

Although we had but 12 days of sunshine during our five weeks' stay, every moment from daylight to dark was well taken advantage of.

Did you ever watch the curtain run down on a beautiful scene and long after you had left the theater you could feel the effects? It is the same with the beautiful sunsets over Murea.

It was our fortune to be there at the time of the year when, as the sun sets, there rise behind the island, silvery-edged clouds behind which, in turn, radiate streaks of light and sun-rays like spokes in a wheel.

The long reflections of the palms or a small sailboat in the smooth waters, now and then the silhouetted figure of a native in his outrigger, put the final touches to the foreground.

I hardly know whether it is the dull roar of those breakers, the reflections of the white schooners on the tranquil waters of the harbor, the swaying of those giant palms in the vivid moonlight, the freshness of the dawn or the beauty of the sunset that weaves a web about you and draws your thoughts back like a huge magnet.

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Can Movies Teach?—Final Installment

(Continued from page 12.)

the 485 pupils, who were taught orally without the aid of correlated motion picture film, improved to 45.5 points—a gain of 13.7. The same pupils with the aid of the film shown **after** the oral lesson, improved to 49.9 points—a gain of 18.1. The same pupils with the aid of motion picture film **before** the lesson, improved to 52.7 points, a gain of 20.9. Professor Weber says, "Statistically these points are reliable to the point of practical certainty."

Movies are either of value or they are not. They either make a genuine contribution to visual instruction or they do not. They add one or more factors to the expression of ideas than do charts, slides, models and other visual aids or they do not. Until scientific tests based upon observation tell the truth conclusively, we do not know how valuable the movies are as a tool for visual instruction.

Results of Observation

Here are the experiences of a few men who have had actual experience in the use of motion pictures:

Edwin H. Reeder, Supervisor of Visual Instruction in the Detroit Public Schools, in answer to the question, "Can the Movies Teach"? says:

"This question hinges on the definition of the word 'teach.' If the question were expressed, 'Can the Movies force a child to learn?' my answer would probably be in the negative. There is only one way for a child to learn. That one way is for him to exercise his mental powers.

"Your question, therefore, to me may be paraphrased in this way, 'Can the movies stimulate a child to mental exertion restulting in his learning?' My experience leads me to answer this with a decided affirmative. Our problem as educators is to select, edit, title and use movies in such a way that the child is stimulated to think, experiment, test his own results and, in other words, to indulge in instructive, purposeful activity."

Dr. Dudley Grant Hays, Director of Visual Instruction of the Board of Education of the city of Chicago, says:

"I recall a statement I once saw in an old book to the effect that 'If we train up a child in the way he should go, when he is old, he will not depart from it.' That old quotation brings to our attention the difference between telling, teaching and training. We can tell a child something and he may grasp the meaning we wish to convey. If we teach the same thing to the child there will remain with him a lasting impression of what we told him and then we say he has been taught that particular topic. If we go further and get the child to put into his life action the things we told him that he remembers, then we say that we have trained him in the use of that idea.

"I believe that wherever motion is an essential part of a lesson we are teaching that the reel has no equal as a means of teaching. I do not believe the time will ever come when the teaching in our schools will be done wholly by reels and not require the present active help of the live teacher. I also believe that with properly prepared reels adapted to the classroom program that the subject matter of our course of study will be grasped by the pupil in much shorter time and in a much more lasting manner than can be the case with any other method of procedure."

Professor J. W. Shepherd of the University of Oklahoma says:

"The matter has not only been settled experimentally, but some measure of the efficiency of the moving picture has been determined. In the piece of research which I began in Wisconsin two years ago, a report of which you already have, the evidence indicated that a well planned and carefully produced educational film has about the same teaching efficiency alone and unaided as the most expert teacher available and perhaps 20 per cent greater efficiency than the average teacher. These figures have been verified by further experimental work in Oklahoma. There is no doubt some types of material with which the motion picture would be much more efficient than the most expert teacher. There are, no doubt, other types of material that could not be presented so well on the screen. There is no justification for the belief that the film ought and should replace the teacher, but there can be little doubt, it seems to me, that the motion picture is the most potential aid in the field of education today.

Prof. Joseph J. Weber of the University of Kansas says:

"I should also like to state:

"In answer to your specific question, 'Can the Movies Teach?' I shall quote the conclusions from my fourth experiment—Experiment D, entitled 'The Comparative Effectiveness of Four Different Methods of Presentation.'

"The four methods of presentation were:—Study of printed page; being taught orally; watching the film; film with comments. Total number of pupils participating, 640; total number of questions asked, 150,000 (estimated).

"1. The averages of the 'Film Lecture' presentation are almost invariably higher than any of the other three methods. This agrees with the findings in Experiments A, B, and C. It may be safe to assert now that, since we have

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statistical reliability in both A and B, and fair probability in C and D, the value of the picture as an aid in teaching stands proved.

2. Since in a verbal test the pictorial impressions must be translated into verbal imagery, by the examinees, it is remarkable to find that the 'Film Alone' is almost as effective as either 'Study' or the 'Teacher.'

"3. A pictorial presentation, compared with a verbal presentation, has a manifestly greater influence upon choice by at least two per cent.

"I should also like to state:—

"(a) The results of this study indicate a distinct value for pictures only as aids, not as substitutes.

"(b) The problem of economy yet remains to be solved, for the cost of some visual aids still outweighs their educative value.

"Learning is the result of thinking, feeling, and doing on the part of the pupil. The movie today ranks high in producing feeling, medium in stimulating thinking, and low in effective doing. Now in order to make the movies teach, the producer, who can play upon the feelings, must call in the teacher whose skill stimulates thinking, and the teacher in his turn must utilize the picture so as to secure action. To quote once more:—

"' . . . . the biggest task in the field of visual instruction now is the actual elaboration of a specific methodology. Every subject in the elementary curriculum, and every fundamental element that can be elucidated with either a visual scene or a visualized scheme, will have to be correlated with one or more visual aids. And every teacher will have to know how to secure, systematize, and utilize most economically the various aids and be an expert in guiding the pupils in their most effective use.' "

Mr. Nelson L. Green, editor of the Education Screen, says:

"It will be easy for you to amass an imposing collection of general opinions and theories from many sources, giving a strong affirmative answer. But I would rather give you something specific and details on why I believe it.

"A few months before the war ended, it was a grave problem in the French army how to keep the soldiers contented in the rest areas back of the lines, and especially in the concentration centers still further from the front. I suggested to the directors of the Foyer du Soldat at Paris that I be allowed to pick up what slides and films I could find in Paris, take along small projectors, and show pictures and lecture to the poilus in these areas on American life—contrasting it tactfully with French life—and confining the subject, of course, to times of peace without reference to war. They authorized a try-out rather hesitantly, in a few places close to where I happened to be stationed, and warned me to speak only 20 minutes as more would be sure to bore the audience. I began. In 10 days I was speaking an hour and a half by request and was ordered by wire from Paris to cover the whole 65 foyers in that zone. In 10 days more the picture showing and lecture lasted two and one-half hours. The next month Paris furnished an auto and an operator and sent the performance on tour throughout all the French war zones. For seven months this continued—to a total audience of about 100,000 soldiers, officers and civilians.

"The original purpose was to interest and entertain, but the audience insisted on considering it as appetizing education. After the lectures, officers and men (in fives, tens and fifties) would surround the speaker for further discussion, sometimes for another hour. Arguments, questions, further explanations, parallels between French and American ways, etc., etc., with much Gallic expression of extreme approval and always the final question, 'When will you be back for the next lecture?'

"Did it teach or merely amuse? Hundreds said they had never had any real idea of American life before, that here was a lecture that left them something to think about, that they understood the doughboys better now, and 'Why don't we do this or that the same way in France?' etc.

"I was speaking to 1100 Poilus packed in the town hall in the great camp at Mailly. General S—— and some aides came in unexpectedly and there was an interrupting crash of benches tipping as 100 tried to get to their feet. The general waived them back to their seats and sat down himself to listen for the remaining hour and a half. (I do not mention his name, but he was one of the eight or 10 on the Supreme Council of War for France.) At the close he told me he wished every soldier in France could hear it; that it gave them more than weeks of reading, even if you could get them to read. He proposed to see to it that every one of his own officers, at least, did hear it. I had but two days scheduled at Mailly on that trip and the evenings belonged to the Poilus. But at the general's special matinee at headquarters the next afternoon he had corralled the 350 officers then in camp, and the general sat through it again himself. Doubtless the officers came expecting to be bored (the Frenchman's most deadly fear, you know), but afterward they spoke in about the same terms as usual of the value of the thing.

"The general had 250 more officers coming into camp the following week and he ordered me to come back and speak to them. I said Paris would have to arrange it. He telegraphed Paris. The second time the message was emphatic. Paris did arrange it and I came back. I warned the general, but he sat through the same pictures and approximately the same lecture for the third time. He explained that he expected to be talking over that lecture for months to come and wanted to be sure that he had it all.

"So personally I feel quite convinced that the movies can 'teach,' and in the real sense of the word. If these blue-uniformed audiences had gotten only facts it would have

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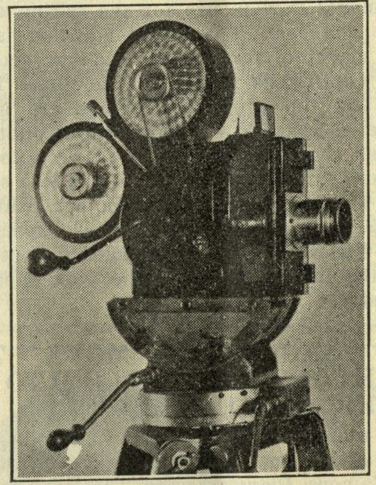

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been a mere funnel process, so rightly despised by educators. But to stimulate thinking for thousands by an hour or so of talk and pictures, to provoke active reflection and deduction, to start eager arguments that I sometimes heard going on months afterwards—that makes me know that movies can **teach.**"

Conclusion

The following tentative conclusions may be drawn:

(a) The movies, as a tool for visual instruction, apparently are a primary and direct method of appeal to from 60 per cent to 90 per cent of the people.

(b) Based upon data already secured by test and upon the first-hand information of many experienced users, further research and tests should be made to determine the exact value and best methods of using movies for instruction.

(c) The preliminary tests to evaluate movies show that they are an effective instructional tool.

(d) There is no danger that movies will replace the teacher because they are merely a supplementary tool in the instructor's hands.

(e) The movies hold out these possible advantages:

1. More effective instructions;
2. Cut the time of learning;
3. Cut the cost of instruction;

or the result may be a combination of two or more of these results.

(f) Movies may be motivated to attract attention, awake interest by linking them with appeals to the emotions, instincts, pictorial sense and the reason

(g) The movies can serve not only as a means of memory training, or as a tool to store the mind with facts, but offer possibilities of stimulating the student to think, experiment and develop his own mentality. In other words the movies may induce constructive thinking and action.

Double Exposures of the Early Days

(Continued from page 13.)

Early and Late Models

Models of stereoscopic cameras, projectors and viewing devices are shown, followed by later models of cameras and projectors that more nearly approach the wonderful perfection of the instruments now in use for the taking and projection of motion pictures. The latest addition is a Jenkins prism disk machine, for taking and projecting motion pictures with continuous motion of the film. The motion of the film and the projected images are synchronized and this makes possible very high speed photography. With this disk the inventor claims to be able to send movies by wireless, which may be the next great step in cinematography. There are many gaps in the exhibit and efforts are being made to fill them. It is expected the coming year will find a very much enlarged collection commensurate with the importance, and the vast capital invested in this industry.

ILLUMINATING ENGINEERS MOVE TO STANDARDIZE COLORS AS APPLIED TO ELECTRICAL EQUIPMENT

At a banquet held at the Clark Hotel, Los Angeles, in honor of Leo Green, a new member, who is chief illuminating engineer of Famous Players-Lasky, the Society of Electrical Illuminating Engineers moved to standardize colors as applied to electrical equipment to the extent that a red, white and blue system be used to identify, respectively, positive, neutral and negative cables.

Among those present when the system was adopted were R. Hostetter, Harry D. Brown, E. Brewer, F. G. Carpenter, Harry E. Collins, P. Coates, R. F. Daggy, A. C. Helvey, R. E. Houck, W. L. Harmon, J. Johnson, L. Kolb, William Johnson, W. Linahan, L. Meyers, W. L. McPheeters, E. V. Morris, F. Murphy, G. E. McCormack, R. E. Nauman, Joseph Reynolds, Gene Shour, B. Wayne, William Whistler, Buck Ewing and George M. Braslin.

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Rudolph Bergquist, A. S. C., has returned from a second trip to the Columbia river district, where he filmed the wrecking of five ferryboats for Metro's "Quincy Adams Sawyer."

* * *

Robert Kurrle, A. S. C., is filming Metro's "All the Brothers Were Valiant," which Irvin Willat is directing.

* * *

Reggie Lyons, A. S. C., has bought a new stucco house in Hollywood. More power to you, Reggie.

* * *

A letter, postmarked "London," from Herford Tynes Cowling, A. S. C., describes a cinematographic exhibition, which, being held at the South Kensington Museum, includes the following: Sir John Herschell's scientific toy, the Thaumatrope, invented ninety-five years ago; the original lantern slides of George IV's coronation procession; specimens of the wax figures used in the Chinese shadow shows centuries before the birth of Christ; a book published in Latin in Rome in 1646, wherein Anathasius Kircher describes the invention of the magic lantern in 1640; and Edison's original projector, which was first revealed to the public at the World's Fair in Chicago in 1893. The exhibition is the property of Will Day, manufacturer of cinema appliances, and is said to have cost almost $50,000 to collect.

* * *

Guy Wilky, A. S. C., is filming "Paths of Glory," a William de Mille production.

* * *

John Seitz, A. S. C., is in Miami, Florida, filming "The Passion Vine," a Rex Ingram production.

* * *

Gilbert Warrenton, A. S. C., is engaged on the second production for Paramount, starring Alice Brady, since going to New York. This production, "Anna Ascends," is the sixth in which Warrenton has photographed Miss Brady.

* * *

Charles Biglow, assistant superintendent of the Chicago Rothacker laboratory since 1918, has been transferred to the Rothacker-Aller plant in Hollywood. Biglow joined Watterson R. Rothacker six years ago.

* * *

George Mitchell, perfector of the Mitchell camera, has returned to Los Angeles from a trip to San Francisco, relative to the establishment of the new Mitchell branch in that city.

John Arnold, A. S. C., has photographed Viola Dana in forty-seven productions—every picture in which Miss Dana has appeared. He has never been absent from work a single day during all that time. At present he is filming "Miss Emmy Lou," in which Miss Dana is starring.

* * *

J. R. Lockwood, A. S. C., has finished filming Hunt Stromberg's "A Punctured Prince," starring Bull Montana.

* * *

Karl Brown, A. S. C., is photographing "The Covered Wagon," which James Cruze is directing.

* * *

Phil Rosen, A. S. C., will direct "Bacchanano," as his next production for Paramount. Mary Miles Minter will be starred.

* * *

Bert Cann, A. S. C., writes from Austria that he expects to journey to Germany shortly. He is with Eddy Polo at present.

* * *

Ben Kline, A. S. C., is finishing "The Hot Head," starring Frank Mayo.

* * *

Roy Overbaugh, A. S. C., is in New York photographing "Fury," starring Richard Barthelmess.

* * *

Don Short, A. S. C., is photographing Dustin Farnum for Fox.

* * *

Sol Polito, A. S. C., has begun filming "Mighty Lak a Rose" in New York City.

* * *

Virgil Miller, A. S. C., is completing "Ridin' Wild," starring Hoot Gibson, for Universal.

* * *

Ira H. Morgan, A. S. C., has left for Europe to film Lionel Barrymore, Alma Rubens, Willie Collier, Jr., and other celebrities in a Cosmopolitan production of Blasco Ibanez's story, "The Enemies of Women."

* * *

Irving G. Thalberg, director general of Universal City, addressed a recent open meeting of the American Society of Cinematographers. He emphasized the importance of superior photography, as seen from the producer's standpoint.

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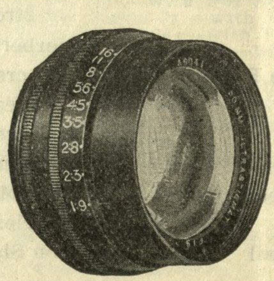
HOLLY 482



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RELEASES

August 27th to September 22nd, 1922

TITLE	PHOTOGRAPHED BY
Rich Men's Wives	Karl Struss
How Women Love	Harry Stradling and Edward Paul
Paid Back	William Fildew, member A. S. C.
Wildness of Youth	Marcel Le Picard, member A. S. C.
When Husbands Deceive	Charles J. Stumar, member A. S. C.
Flesh and Blood	Not credited
Through the Storm	Lawrence L. Fowler
The Sage Brush Trail	Harold Janes
East Is West	Gaetano Gaudio, member A. S. C.
The Valley of Silent Men	Chester Lyons
The Light in the Dark	Alfred Ortlieb
Top O' the Morning	Charles Stumar, member A. S. C.
The Curse of Drink	Harry Fishback.
Dusk to Dawn	George Barnes, member A. S. C.
Saved By Radio	Ernest Miller and Hal Mohr
Why Do Men Marry?	Not credited
Kindred of the Dust	H. Lyman Broening and Charles van Enger, members A. S. C.
Grandma's Boy	Walter Lundin, member A. S. C.
Burning Sands	Bert Glennon
The Three Must-Get-Theres	Max B. Du Pont, member A. S. C., and Harry Vallejo
Love Is An Awful Thing	Jules Cronjager
The Range Patrol	J. C. Cook
The Woman He Loved	Gaetano Gaudio, member A. S. C.
The Galloping Kid	Arthur E. Reeves
A Little Child Shall Lead Them	Bert Dawley
A Girl's Desire	Not credited
Life's Greatest Question	Not credited
Little Wildcat	Stephen Smith, member A. S. C.
Youth Must Have Love	George Schneiderman, member A. S. C.
When Knighthood Was In Flower	Ira H. Morgan, member A. S. C., and Harold Wenstrom
Remembrance	Norbert F. Brodin, member A. S. C.
The Hound of the Baskervilles	Not credited
Caught Bluffing	Charles Stumar, member A. S. C.
The Isle of Doubt	Not credited
The Ghost Breaker	William Marshall, member A. S. C.
The Snowshoe Trail	Jack Mackenzie, member A. S. C.
The Siren Call	Charles E. Schoenbaum, member A. S. C.
The Yosemite Trail	Don Short, member A. S. C.

Where to Find the Members of the

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Paul Perry
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George Schneiderman
Philip H. Whitman
L. Guy Wilky

Abel, David—Fox Studio.
Arnold, John—with Viola Dana, Metro Studio.
Barlatier, Andre—
Barnes, George S.—with King Vidor, Metro Studios.
Beckway, Wm. J.—
Benoit, Georges—with Richard Walton Tully, James Young, United.
Broening, H. Lyman—
Brodin, Norbert F.—
Bergquist, Rudolph J.—with Metro Studio.
Brown, Karl—with James Cruze, Lasky Studio.
Cann, Bert—in Europe.
Cowling, Herford T.—Travel Pictures, Europe.
Cronjager, Henry—with Madge Kennedy, New York City.
Davey, Allen M.—
Dean, Faxon M.—with Lasky Studio.
Depew, Ernest S.—with Al St. John, Fox Sunshine.
Doran, Robert S.—with Charles Parrott, Roach Studio.
Dored, John—Scenic, Russia.
Dubray, Joseph A.—with R-C Studio.
DuPar, E. B.—with Warner Brothers.
Du Pont, Max B.—
Edeson, Arthur—with Douglas Fairbanks, Fairbanks-Pickford Studio.
Evans, Perry—with Mack Sennett Productions, Sennett Studio.
Fildew, William—with Universal.
Fisher, Ross G.—
Foster, Wm. C.—
Fowler, Harry M.—Joe Rock, Universal Studio.
Gaudio, Tony G.—with Joseph Schenck Productions-Constance Talmadge, United.
Gilks, A. L.—with Sam Woods, Gloria Swanson, Lasky Studio.
Good, Frank B.—with Jackie Coogan, United Studio.
Granville, Fred L.—with British International Corp., London.
Gray, King D.—Hallroom Boys Comedies.
Griffin, Walter L.—with David M. Hartford Prods.
Guissart, Rene—with Harley Knoles in charge of photography, London.
Heimerl, Alois G.—
Jackman, Floyd—with Warner Brothers.
Jackman, Fred W.—Supervising Cinematographer, Mack Sennett Studio.
Klaffki, Roy H.—Director of Photography, Metro Studio.
Kline, Ben H.—with Universal.
Koenekamp, Hans F.—with Larry Semon, Vitagraph Studio.
Kull, Edward—Directing at Universal.
Kurrle, Robert—with Metro Studio.
Lockwood, J. R.—Hunt Stromberg, Metro Studio.
Lundin, Walter—with Harold Lloyd, Roach Studio.
Lyons, Reginald E.—with Larry Semon, Vitagraph Studio.
MacKenzie, Jack—with Chester Bennett, United Studio.
MacLean, Kenneth G.—
Marshall, William—Irving Cummings Prods.
Meehan, George—with Charles Ray, Ray Studio.
Miller, Virgil E.—with Universal.
Milner, Victor—with Universal.
Morgan, Ira H.—with Marion Davies, International, New York.
Newhard, Robert S.—
Norton, Stephen S.—with Choice Productions, Universal Studio.
Overbaugh, Roy F.—with Richard Barthelmess, New York City.
Palmer, Ernest S.—In England.
Perry, Paul P.—with Penrhyn Stanlaws, Lasky Studio.
LePicard, Marcel—Co-Director with George Roland, Penn Pictures Co., Philadelphia.
Polito, Sol—with Edwin Carewe, New York.
Reynolds, Ben F.—
Rizard, Georges—with Charles Ray, Ray Studio.
Rose, Jackson—
Rosen, Philip E.—Directing Rudolph Valentino, Lasky Studio.
Rosher, Charles—with Mary Pickford, Pickford-Fairbanks Studio.
Schoenbaum, Chas. E.—with Lasky Studio.
Schneiderman, George—with Fox Studio.
Scott, Homer A.—
Seitz, John F.—with Rex Ingram, Metro.
Seigler, Allen—Fred Niblo, Mayer Studios.
Sharp, Henry—with Ince, Ince Studio.
Short, Don—with Fox Studio.
Smith, Steve, Jr.—with Vitagraph Studio.
Stumar, Charles—with Eddie Laemmle, Europe.
Totheroh, Rollie H.—with Charlie Chaplin, Chaplin Studio.
Van Trees, James C.—with Lasky Studio.
Van Enger, Charles—with Maurice Tourneur, Goldwyn.
Walter, R. W.—with Mack Sennett Productions, Sennett Studio.
Warrenton, Gilbert—with Alice Brady, Lasky, in New York.
Whitman, Philip H.—with Universal, Experimental Department.
Wilky, L. Guy—with William De Mille, Lasky Studio.

Dexter, G. R.—Attorney.
Paley, William "Daddy"—Honorary Member.
Thomas A. Edison, Honorary Member.

LOYALTY PROGRESS ART

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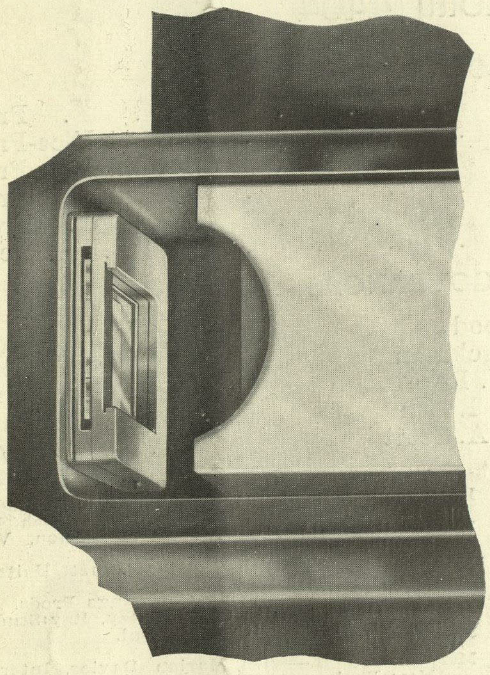

Section of Camera Door Focusing Tube, Cover removed, Showing Ground Glass and Matte Slides each side of Glass.

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